

AMENDMENT TO THE CLAIMS:

1. (Currently Amended) A vertebral arthrodesis device comprising:

at least one pin designed to be positioned along vertebrae that are to be immobilized;

at least one screw for anchoring the pin to the vertebrae, each screw including: a head that delimits a cavity for receiving the pin;

at least one ring for snap-on installation of the pin in the cavity that the head delimits, the ring having a substantially spherical outer surface and an inside diameter allowing sliding engagement on the pin; ~~and~~

wherein the head of each screw is shaped so that the cavity that the head delimits may receive the at least one ring with snap-on installation~~[-:] and~~

wherein the cavity of each screw head is shaped to allow angular adjustments in multiple planes of the at least one pin with respect to the at least one screw prior to immobilization of the pin.

2. (Previously Presented) The device according to claim 1, wherein the head of each screw comprises at least one slot opening in the bottom of the cavity, giving the cavity a slight flexibility in a direction perpendicular to that according to which the cavity opens on the outside of the head.

3. (Previously Presented) The device according to claim 2, wherein the head of each screw comprises two lateral slot openings in the bottom of the cavity.

4. (Previously Presented) The device according to claim 3, wherein each lateral slot opening is inclined toward the other slot opening.

5. (Previously Presented) The device according to claim 1, wherein the cavity of each screw is delimited by a wall in the form of a hollow sphere segment having a diameter slightly less than the outer diameter of each ring.

6. (Currently Amended) The device according to claim 5, wherein the cavity of each screw includes an inner surface having a partially spherical contour, and is bordered by two lateral undercuts in the form of a segment of a hollow sphere, wherein the two lateral undercuts and the partially spherical contour allow angular adjustments of the at least one pin.

7. (Previously Presented) The device according to claim 1, wherein the head of each screw includes two lateral walls, each lateral wall including at least one threaded hole.

8. (Previously Presented) The device of claim 1, wherein the at least one ring includes a plurality of slots distributed on its periphery.

9. (Previously Presented) The device of claim 8, wherein the slots of the at least one ring extend between the outer surface of the ring and the inside diameter of the ring.

10. (Previously Presented) The device of claim 9, wherein each of the slots of the at least one ring open at one of the longitudinal openings, and each adjacent slot opens at the opposite longitudinal opening.

11. (Previously Presented) The device of claim 1, wherein the head further includes:

at least two lateral threaded holes;

a cap shaped for positioning on the head by overlapping the at least one ring and having at least two threaded holes configured to align with the at least two lateral threaded holes of the head when the cap is positioned on the head; and

at least two threaded tightening members for securing the cap to the head by passing the tightening members through the at least two holes of the cap and into the threaded holes of the head.

12. (Currently Amended) A vertebral arthrodesis device, comprising:

at least one pin configured to be positioned along two or more vertebrae;

at least one ring having a through hole for receiving the at least one pin, an inside diameter configured to allow sliding engagement with the at least one pin, and an outer surface having a substantially spherical shape; and

at least one screw, including:

a head that includes a cavity for receiving the at least one ring in sliding engagement with the pin with snap-on installation, wherein the cavity includes an inner surface having a partially spherical contour configured to engage the outer surface of the at least one ring; and

at least one cap having an aperture configured to contact and secure the at least one ring within the cavity, the aperture delimited by inwardly inclined side walls in a cross-section along a first axis of the cap.

13. (Previously Presented) The device according to claim 12, wherein the head of each screw comprises at least one slot opening in the bottom of the cavity, giving the cavity a slight flexibility in a direction perpendicular to that according to which the cavity opens on the outside of the head.

14. (Previously Presented) The device according to claim 13, wherein the head of each screw comprises two lateral slot openings in the bottom of the cavity.

15. (Previously Presented) The device according to claim 14, wherein each lateral slot opening of the head of the screw is inclined towards the other slot opening.

16. (Previously Presented) The device according to claim 12, wherein the cavity of each screw is delimited by a wall in the form of a hollow sphere segment having a diameter slightly less than an outer diameter of each ring.

17. (Currently Amended) The device according to claim 16, wherein the cavity of each screw is bordered by two lateral undercuts in the form of a segment of a hollow sphere, the lateral undercuts allowing angular adjustments of the at least one pin in multiple planes.

18. (Previously Presented) The device according to claim 12, wherein the head of each screw includes two lateral walls, each lateral wall including at least one threaded hole.

19. (Previously Presented) The device of claim 12, wherein the at least one ring includes a plurality of slots distributed on its periphery.

20. (Previously Presented) The device of claim 19, wherein the slots of the at least one ring extend between the outer surface of the ring and the inside diameter of the ring.

21. (Previously Presented) The device of claim 20, wherein each of the slots of the at least one ring open at one of the longitudinal openings, and each adjacent slot opens at the opposite longitudinal opening.

22. (Previously Presented) The device of claim 12, wherein the cap includes at least two threaded holes; and

wherein the head further includes:

at least two lateral threaded holes configured to align with the at least two lateral threaded holes of the cap when the cap is positioned on the head; and

at least two threaded tightening members for securing the cap to the head by passing the tightening members through the at least two holes of the cap and into the threaded holes of the head.

23. (Previously Presented) The device of claim 12, wherein the aperture of the cap has a spherical cross-section along a second axis of the cap perpendicular to the first axis.

24. (Previously Presented) The device of claim 12, wherein the aperture has a conical shape.

25. (New) A method of vertebral arthrodesis, comprising the steps of:

providing a pin for placement along vertebrae to be immobilized, the pin having a flexible ring with a spherical outer surface;

providing at least one screw for anchoring the pin to the vertebrae, the at least one screw including a head that delimits a cavity for receiving the pin and ring;

snap-fitting the ring into the cavity of the screw head to position the pin on the screw;

after snap-fitting the ring into the cavity, adjusting the angular alignment of the pin with respect to the screw along multiple planes; and

immobilizing the pin by fastening a cap on the head of each screw.

26. (New) The method of claim 25, wherein the step of immobilizing the pin includes passing at least two tightening members through at least two holes on the cap into two lateral holes on the head of each screw.

27. (New) The method of claim 26, wherein the tightening members are threaded, and the holes on the cap and the head of each screw, thorough which the tightening members are passed, have complementary threads.

28. (New) The method of claim 25, further comprising the step of providing a plurality of screws for anchoring the pin to the vertebrae to be immobilized, and further providing rings on the pin in a number equal to that of the screws;

wherein each ring is snap-fitted into one of the plurality of screws.

29. (New) The method of claim 25, wherein the cavity of the screw head includes an inner surface having a partially spherical contour.

30. (New) The method of claim 29, wherein the partially spherical contour of the cavity and the spherical outer surface of the ring engage to allow angular adjustments of the pin with respect to the screw.

31. (New) The method of claim 25, wherein the cavity of the screw head is bordered by two lateral undercuts to provide angular clearance to the pin with respect to the screw.

32. (New) The method of claim 31, wherein the lateral undercuts are in the form of hollow spheres to allow angular clearance to the pin along multiple planes.

33. (New) The method of claim 26, wherein the cap has a spherical aperture configured to contact and secure the ring when the tightening members are placed into the holes on the head of each screw.

34. (New) The method of claim 26, wherein the cap has a conical aperture configured to secure the ring by means of inwardly inclined walls of the cap when the tightening members are placed into the holes on the head of each screw.

35. (New) The method of claim 25, wherein the ring has a plurality of slots distributed on its periphery to allow radial displacement of the ring.